MARKINGS TO SHOW CHANGES MADE." Applicants present all of the currently pending claims here, whether amended or not, for the Examiner's convenience.

1. (Amended) A system for calibrating light output by a light-emitting diode (LED), the system comprising:

a housing to which an LED to be calibrated may be positioned therein;

a photosensor disposed in the housing for obtaining an output measurement generated by the LED;

a processor in communication with the photosensor and the LED, the processor configured to formulate a calibration value based on a comparison of the output measurement and a reference value, such that during a subsequent generation of light output, the calibration value permits the subsequent light output to have a calibrated intensity; and

a memory mechanism in association with the LED to store the calibration value.

2. (Amended) A system as set forth in claim 1, wherein the housing can accommodate a fixture having multiple LEDs thereon.

3. (Amended) A system as set forth in claim 1, wherein the housing is configured as an enclosed member to encompass at least the photosensor, so as to substantially block ambient light from reaching the photosensor.

4. A system as set forth in claim 3, wherein communication between the processor and either of the LED or the photosensor can be implemented by one of a cable, wire, network, or a combination thereof.

5. A system as set forth in claim 3, wherein communication between the processor and either of the LED or the photosensor is by wireless means.

6. A system as set forth in claim 5, wherein the wireless means includes one of a radio frequency (RF), infrared (IR), microwave, electromagnetic transmission, acoustic, Bluetooth, home RF or other wireless means.

7. (Amended) A calibration device comprising:

a support to which an LED to be calibrated may be positioned thereon;

a photosensor adjacent to the support for obtaining an output measurement from the light output generated by the LED; and

a communication mechanism through which the output measurement from the photosensor is communicated to a processor, which processor formulates a calibration value based on a comparison of the output measurement and a reference value, and through which the calibration value from the processor is communicated to the LED;

wherein the LED includes a memory mechanism on which the calibration value communicated from the processor is stored.

8. A device as set forth in claim 7, wherein communication between the communication mechanism and the processor can be implemented by one of a cable, wire, network, or a combination thereof.

9. A device as set forth in claim 7, wherein the communication mechanism includes a transmitter and a receiver.

10. A device as set forth in claim 9, wherein communication between the processor and either of the transmitter and receiver is by wireless means.

11. A device as set forth in claim 10, wherein the wireless means includes one of radio frequency (RF), infrared (IR), microwave, electromagnetic transmission, acoustic, Bluetooth, home RF, or other wireless means.

12. A device as set forth in claim 7, further including a display on which parameters regarding light output from the LED may be provided to inform a user of status of the light output.

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13. A device as set forth in claim 7, further including an interface to permit a user to vary light output parameters.

14. A device as set forth in claim 7, further including a second memory mechanism for storing the output measurement from the photosensor, which output measurement can subsequently be communicated to the processor.

15. A device as set forth in claim 7, further including a processor for formulating a calibration value from an adjustment of the output measurement against the reference value, such that during a subsequent generation of light output, the calibration value permits the subsequent light output to approximate an output according to the reference value.

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16. (Twice Amended) A calibration device comprising:

a housing;

an activation unit for inducing light output from at least one remote LED to be calibrated, the at least one LED not included in the housing;

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a photosensor disposed in the housing for obtaining at least one output measurement of light generated by the at least one LED; and

a communication mechanism in the housing through which the at least one output measurement from the photosensor is communicated to a processor, which processor formulates at least one calibration value based on a comparison of the at least one output measurement and at least one reference value, and through which the at least one calibration value from the processor can be received and subsequently communicated to the at least one LED.

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17. (Amended) A device as set forth in claim 16, wherein communication between the activation unit and either of the processor and the at least one LED is implemented by at least one of a wireless connection, a non-wireless connection, and a network connection.

18. (Amended) A device as set forth in claim 17, further including the processor, wherein the processor is located within the housing of the device.

19. (Amended) A device as set forth in claim 17, wherein the processor is a remote processor not included in the housing, and wherein the communication mechanism includes wireless means to communicate with the remote processor.

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20. (Amended) A device as set forth in claim 19, wherein the wireless means includes at least one of radio frequency (RF) means, infrared (IR) means, microwave means, electromagnetic transmission means, acoustic means, and Bluetooth means.

21. A device as set forth in claim 16, further including, on the housing, a display on which parameters regarding light output from the LED may be provided to inform a user of status of the light output.

22. A device as set forth in claim 16, further including, on the housing, an interface to permit a user to vary light output parameters.

23. A device as set forth in claim 16, further including a memory mechanism for storing the output measurement from the photosensor, which output measurement can subsequently be communicated to the processor.

24. (Amended) A device as set forth in claim 16, further including a memory mechanism for storing at the calibration device the at least one calibration value received from the processor, wherein the activation unit is configured to relay the at least one calibration value

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to the at least one LED, such that during a subsequent generation of light output, the at least one calibration value permits the subsequent light output to approximate an output accorded to the reference value.

25. (Twice Amended) An illumination device comprising:

a plurality of differently colored LED illumination sources configured to generate an additive mixture of colored light;

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at least one photosensor for obtaining at least one output measurement of radiation generated by at least some of the LED sources;

a processor in communication with the at least one photosensor for making a comparison of the at least one output measurement and at least one reference value and formulating at least one calibration value based on the comparison; and

a memory mechanism coupled to the processor and on which the resulting at least one calibration value is stored.

26. (Amended) A device as set forth in claim 25, further including a display on which parameters regarding light output from at least some of the LED sources may be provided to inform a user of a status of the light output.

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27. A device as set forth in claim 25, further including an interface to permit a user to vary light output parameters.

28. (Amended) A device as set forth in claim 25, wherein the at least one reference value includes a plurality of pre-programmed reference values that are stored on the memory mechanism.

29. (Amended) A device as set forth in claim 28, wherein the plurality of pre-programmed reference values are stored on the memory mechanism as a table of fixed values representative of respective types of the plurality of LED sources.

30. (Twice Amended) A method for calibrating light output by at least one light-emitting diode (LED), the method comprising acts of:

generating light output from the at least one LED;

obtaining at least one output measurement for the light output generated by the at least one LED;

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comparing the at least one output measurement to at least one reference value;

formulating at least one calibration value based on the act of comparing;

storing the at least one calibration value in memory;

recalling the at least one calibration value from the memory during a subsequent generation of light output; and

applying the at least one calibration value to the at least one LED such that the at least one calibration value permits the subsequent light output to have a calibrated intensity.

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33. A method as set forth in claim 30, wherein the step of comparing includes assigning a relative value to the output measurement, such that the relative value may be used in adjusting the output measurement.

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34. (Amended) A method as set forth in claim 33, wherein the step of formulating includes scaling the light output, such that the relative value approximates the reference value to permit generation of uniform light output by the LED.

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35. A method as set forth in claim 30, wherein the step of formulating permits adjustment of intensity output by the LED.

36. A method as set forth in claim 30, wherein the step of formulating permits adjustment of color output by the LED.

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37. A method as set forth in claim 36, wherein the calibration of color output by the LED can be used to provide a desired overall hue or whiteness in a multiple LED environment.

38. (Amended) The illumination device of claim 25, wherein:

the plurality of LED sources includes:

at least one first light source adapted to output first radiation having a first color; and

at least one second light source adapted to output second radiation having a second color different from the first color;

the processor is configured to receive at least first and second lighting commands and, based on the at least one calibration value, control the at least one first light source so as to output the first radiation at a first calibrated intensity that substantially corresponds in a predetermined manner to the first lighting command, the processor further configured to control the at least one second light source so as to output the second radiation at a second calibrated intensity that substantially corresponds in a predetermined manner to the second lighting command.

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39. (Amended) The illumination device of claim 38, wherein the at least one first light source and the at least one second light source are arranged with respect to each other so as to mix the first and second radiation having the respective first and second calibrated intensities to produce a single calibrated color at a given time.

40. (Amended) The illumination device of claim 38, wherein the processor is configured as an addressable processor to receive the at least first and second lighting commands via a network connection based on an address of the processor.

41. (Amended) The illumination device of claim 39, wherein the at least first and second lighting commands are provided to the processor such that the single calibrated color

produced by mixing the first and second radiation having the respective first and second calibrated intensities is a calibrated substantially white color.

42. (Amended) The illumination device of claim 38, wherein the processor is configured to control the at least one first light source and the at least one second light source using a pulse width modulation technique, and wherein the at least first and second commands represent respective duty cycles of pulse width modulation signals used to control the at least one first light source and the at least one second light source.

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43. (Amended) The illumination device of claim 38, further comprising an at least partially transparent housing that at least partially encloses the at least one first light source and the at least one second light source so as to mix the first and second radiation.

44. (Amended) The illumination device of claim 42, wherein the processor is configured as an addressable processor to receive the at least first and second lighting commands via a network connection based on an address of the processor.

45. (Amended) The illumination device of claim 38, wherein the at least one calibration value includes a plurality of calibration values, and wherein the processor is configured to:

apply at least one first calibration value to the first lighting command to control the at least one first light source to output the first calibrated intensity; and

apply at least one second calibration value to the second lighting command to control the at least one second light source to output the second calibrated intensity.

46. (Amended) The illumination device of claim 45, wherein the memory mechanism is configured to store at least the at least one first calibration value and the at least one second calibration value.

47. (Amended) The illumination device of claim 45, wherein the memory mechanism includes:

a first memory integrated with the at least one first light source, the first memory storing the at least one first calibration value; and

a second memory integrated with the at least one second light source, the second memory storing the at least one second calibration value.

48. (Amended) The illumination device of claim 45, wherein the at least one photosensor is adapted to measure the first radiation and the second radiation, wherein the at least one reference value includes a plurality of reference values, and wherein the processor is configured to:

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determine the at least one first calibration value by comparing the measured first radiation to at least one first reference value; and

determine the at least one second calibration value by comparing the measured second radiation to at least one second reference value.

49. (Amended) The illumination device of claim 48, further comprising a housing to enclose at least the at least one photosensor, the at least one first light source, and the at least one second light source.

50. (Amended) The illumination device of claim 48, wherein the at least first and second lighting commands are provided to the processor such that a single calibrated color produced by mixing the first and second radiation having the respective first and second calibrated intensities is a calibrated substantially white color.

51. (Amended) The illumination device of claim 50, wherein the processor is configured to control the at least one first light source and the at least one second light source using a pulse width modulation technique, wherein the at least first and second commands represent respective duty cycles of pulse width modulation signals used to control the at least one

first light source and the at least one second light source, and wherein the processor is configured to apply the at least one first and second calibration values to the at least first and second commands so as to adjust the respective duty cycles of the pulse width modulated signals.

52. (Amended) The illumination device of claim 51, wherein the processor is configured as an addressable processor to receive the at least first and second lighting commands via a network connection based on an address of the processor.

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53. (Amended) The illumination device of claim 38, wherein the first lighting command includes a first reference signal, and wherein the processor is configured to determine at least one first calibration value for the at least one first light source such that the at least one first light source outputs the first radiation at a first reference intensity when the first lighting command is the first reference signal.

54. (Amended) The illumination device of claim 53, wherein the at least one photosensor is adapted to measure at least the first radiation, and wherein the processor is configured to determine the at least one first calibration value by:

applying the first reference signal to the at least one first light source;

monitoring the measured first radiation from the at least one photosensor;

making a comparison of the measured first radiation and at least one first reference value; and

determining the at least one first calibration value based on the comparison.

55. (Amended) The illumination device of claim 54, further comprising a housing to enclose at least the at least one photosensor, the at least one first light source, and the at least one second light source.

57. (Amended) The illumination device of claim 53, wherein the processor is configured to apply the at least one first calibration value to at least one subsequent first lighting command to control the at least one first light source to output the first calibrated intensity.

58. (Amended) The illumination device of claim 57, wherein the second lighting command includes a second reference signal, and wherein the processor is configured to determine at least one second calibration value for the at least one second light source such that the at least one second light source outputs the second radiation at a second reference intensity when the second lighting command is the second reference signal.

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59. (Amended) The illumination device of claim 58, wherein the at least one photosensor is adapted to measure at least the second radiation, and wherein the processor is configured to determine the at least one second calibration value by:

applying the second reference signal to the at least one second light source;

monitoring the measured second radiation from the at least one photosensor;

making a comparison of the measured second radiation and at least one second reference value; and

determining the at least one second calibration value based on the comparison.

60. (Amended) The illumination device of claim 59, further comprising a housing to enclose at least the at least one photosensor, the at least one first light source, and the at least one second light source.

61. (Amended) The illumination device of claim 58, wherein the memory mechanism is configured to store at least the at least one first calibration value and the at least one second calibration value.

62. (Amended) The illumination device of claim 58, wherein the processor is configured to apply the at least one second calibration value to at least one subsequent second

lighting command to control the at least one second light source to output the second calibrated intensity.

63. (Amended) The illumination device of claim 58, wherein the at least first and second lighting commands are provided to the processor such that a single calibrated color produced by mixing the first and second radiation having the respective first and second calibrated intensities is a calibrated substantially white color.

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65. (Amended) The illumination device of claim 63, further comprising a housing to enclose at least the at least one photosensor, the at least one first light source, and the at least one second light source.

66. (Amended) The method of claim 30, wherein the act of applying comprises acts of:

a) generating first radiation from at least one first LED in response to a first lighting command, the first radiation having a first color;

b) generating second radiation from at least one second LED in response to a second lighting command, the second radiation having a second color different from the first color;

c) processing the first lighting command, based on the at least one calibration value, such that the generated first radiation has a first calibrated intensity that substantially corresponds in a predetermined manner to the first lighting command; and

d) processing the second lighting command, based on the at least one calibration value, such that the generated second radiation has a second calibrated intensity that substantially corresponds in a predetermined manner to the second lighting command.

67. (Amended) The method of claim 66, further including an act of:

e) mixing the first and second radiation having the respective first and second calibrated intensities to produce a single calibrated color at a given time.

68. (Amended) The method of claim 66, further including an act of:

receiving the at least first and second lighting commands via a network connection based on at least one network address.

69. (Amended) The method of claim 67, further comprising an act of:

providing the at least first and second lighting commands such that the single calibrated color produced in the act e) is a calibrated substantially white color.

70. (Amended) The method of claim 66, wherein the acts a) and b) include an act of controlling the at least one first LED and the at least one second LED using a pulse width modulation technique, wherein the at least first and second commands represent respective duty cycles of pulse width modulation signals used to control the at least one first LED and the at least one second LED.

71. (Amended) The method of claim 67, wherein the act e) comprises an act of:

passing the first and second radiation through an at least partially transparent material so as to mix the first and second radiation.

72. (Amended) The method of claim 66, wherein:

the act c) includes an act of applying at least one first calibration value to the first lighting command to provide the first calibrated intensity; and

the act d) includes an act of applying at least one second calibration value to the second lighting command to provide the second calibrated intensity.

73. (Amended) The method of claim 72, wherein the act of storing comprises an act of:

storing at least the at least one first calibration value and the at least one second calibration value in the memory.

74. (Amended) The method of claim 72, wherein:

the act of obtaining at least one output measurement for the light output generated by the at least one LED includes an act of measuring the first radiation and the second radiation; and

the act of formulating at least one calibration value includes acts of:

determining the at least one first calibration value by comparing the measured first radiation to at least one first reference value; and

determining the at least one second calibration value by comparing the measured second radiation to at least one second reference value.

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75. (Amended) The method of claim 74, further comprising an act of:

providing the at least first and second lighting commands so as to generate a calibrated substantially white color.

77. (Amended) The method of claim 66, wherein the first lighting command includes a first reference signal, and wherein the act c) includes an act of:

c1) determining at least one first calibration value such that the first radiation is generated at a first reference intensity when the first lighting command is the first reference signal.

78. (Amended) The method of claim 77, wherein:

the act of generating light output from the at least one LED includes an act of asserting the first reference signal;

the act of obtaining at least one output measurement for the light output generated by the at least one LED includes an act of measuring the first radiation generated in response to the first reference signal;

the act of comparing the at least one output measurement to at least one reference value includes an act of making a comparison of the measured first radiation and at least one first reference value; and

the act of formulating at least one calibration value includes an act of determining the at least one first calibration value based on the comparison.

79. (Amended) The method of claim 77, wherein the act of storing comprises an act of:

storing at least the at least one first calibration value in the memory.

80. (Amended) The method of claim 77, wherein the act c) further includes an act of:

c2) applying the at least one first calibration value to at least one subsequent first lighting command to provide the first calibrated intensity.

81. (Amended) The method of claim 80, wherein the second lighting command includes a second reference signal, and wherein the act d) includes an act of:

d1) determining at least one second calibration value such that the second radiation is generated at a second reference intensity when the second lighting command is the second reference signal.

82. (Amended) The method of claim 81, wherein:

the act of generating light output from the at least one LED includes an act of asserting the second reference signal;

the act of obtaining at least one output measurement for the light output generated by the at least one LED includes an act of measuring the second radiation generated in response to the second reference signal;

the act of comparing the at least one output measurement to at least one reference value includes an act of making a comparison of the measured second radiation and at least one second reference value; and

the act of formulating at least one calibration value includes an act of determining the at least one second calibration value based on the comparison.

83. (Amended) The method of claim 81, wherein the act of storing comprises an act of:

storing at least the at least one second calibration value in the memory.

84. (Amended) The method of claim 81, wherein the act d) further includes an act of:

d2) applying the at least one second calibration value to at least one subsequent second lighting command to provide the second calibrated intensity.

85. (Amended) The method of claim 84, further comprising an act of:

providing the at least first and second lighting commands so as to generate a calibrated substantially white color.

86. (Amended) The method of claim 84, wherein:

the acts a) and b) include an act of controlling the at least one first LED and the at least one second LED using a pulse width modulation technique, wherein the at least first and second commands represent respective duty cycles of pulse width modulation signals used to control the at least one first LED and the at least one second LED; and

the acts c) and d) include an act of applying the at least one first and second calibration values to the at least first and second commands so as to adjust the respective duty cycles of the pulse width modulated signals.

87. (Amended) The illumination device of claim 25, wherein the processor includes calibration means for adjusting the light output of at least some LED sources of the plurality of LED sources, based on the at least one calibration value, such that the additive mixture of colored light has a calibrated color.

88. (Amended) The illumination device of claim 87, wherein the additive mixture of colored light is a substantially white light, and wherein the calibration means is configured to adjust the light output of at least some LED sources of the plurality of LED sources, based on the

at least one calibration value, such that the additive mixture of colored light has a calibrated substantially white color.

89. (Amended) The illumination device of claim 87, wherein the calibration means includes means for compensating for perceptible differences in light output between similar illumination devices.

90. (Amended) The illumination device of claim 87, wherein the calibration means includes means for scaling the light output of at least some LED sources of the plurality of LED sources so as to produce the calibrated color.

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91. (Amended) The illumination device of claim 87, wherein the calibration means includes means for adjusting commands sent to at least some LED sources of the plurality of LED sources, based on the at least one calibration value, so as to produce the calibrated color.

92. (Amended) The illumination device of claim 91, wherein the means for adjusting commands includes means for applying the at least one calibration value to at least one command sent to at least some LED sources of the plurality of LED sources.

93. (Amended) The illumination device of claim 92, wherein the processor is configured to control the plurality of LED sources via a plurality of pulse width modulated signals, wherein the at least one command relates to at least one parameter of at least one pulse width modulated signal of the plurality of pulse width modulated signals, and wherein the processor is configured to apply the at least one calibration value to the at least one command so as to adjust the at least one parameter of the at least one pulse width modulated signal.

94. (Amended) The illumination device of claim 93, wherein the at least one parameter includes a duty cycle of the at least one pulse width modulated signal, and wherein the

processor is configured to apply the at least one calibration value to the at least one command so as to adjust the duty cycle of the at least one pulse width modulated signal.

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95. (Amended) The illumination device of claim 94, wherein:

the processor is configured as an addressable processor to be coupled to a network connection, the processor further being configured to receive the at least one command from the network connection based at least in part on an address of the processor.

96. (Amended) The illumination device of claim 95, wherein the at least one command is communicated over the network connection using a DMX protocol, and wherein the processor is configured to receive the at least one command using the DMX protocol and to apply the at least one calibration value to the at least one command based at least in part on the DMX protocol.

Please add claims 97-101 as follows:

97. (New) The illumination device of claim 87, wherein the at least one reference value is based on at least one measurement of an ambient lighting condition.

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98. (New) The illumination device of claim 97, wherein the calibration means is configured to adjust the light output of at least some LED sources of the plurality of LED sources, based on the at least one calibration value, such that the additive mixture of colored light approximates the ambient lighting condition.

99. (New) The illumination device of claim 98, wherein the additive mixture of colored light is a substantially white light, and wherein the calibration means is configured to adjust the light output of at least some LED sources of the plurality of LED sources, based on the at least one calibration value, such that the additive mixture of colored light has a calibrated substantially white color.

100. (New) The illumination device of claim 89, wherein the illumination device is configured to be placed in a lighting network including at least one other illumination device, and wherein the processor is configured to adjust at least one first illumination property of the illumination device so that it is similar to at least one second illumination property of the at least one other illumination device of the lighting network.

101. (New) The illumination device of claim 100, wherein the processor is configured to adjust the at least one first illumination property based at least in part on at least one of an age of the at least one other illumination device, a manufacturing date of the at least one other illumination device, and at least one measured illumination condition of the at least one other illumination device.